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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR        | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|-----------------------------|---------------------|------------------|
| 10/539,640  | 09/21/2006  | Marc Lemaire                | 1022702-000281      | 2919             |
| 21839 7590 04/21/2009<br>BUCHANAN, INGERSOLL & ROONEY PC<br>POST OFFICE BOX 1404<br>ALEXANDRIA, VA 22313-1404 |             |                             |                     |                  |
| EXAMINER<br>NWAONICHA, CHUKWUMA O   |             |                             |                     |                  |
| ART UNIT<br>1621  |             | PAPER NUMBER                |                     |                  |
| NOTIFICATION DATE<br>04/21/2009   |             | DELIVERY MODE<br>ELECTRONIC |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

### Office Action Summary

**Application No.**

10/539,640

**Applicant(s)**

LEMAIRE ET AL.

**Examiner**

CHUKWUMA O. NWAONICHA

**Art Unit**

1621

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 65-68, 74 and 94 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 65-68 and 94 is/are rejected.
- 7) ☒ Claim(s) 74 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date 03/27/2009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### **Continued Examination Under 37 CFR 1.114**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 27 February 2009 has been entered.

#### **Current Status**

1. Claims 65-68, 74 and 94 are pending in the application.

#### **Priority**

Applicants' claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

#### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

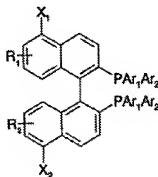
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 65-68 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guo-Jun Deng et al., {A novel system consisting of easily recyclable dendritic Ru-BINAP catalyst for asymmetric Hydrogenation, Chemical Communications (Cambridge, United Kingdom) (2002), (15), 1570-1571}, Fan et al., {Highly Effective Soluble Polymer-Supported Catalysts for Asymmetric Hydrogenation, Journal of the American Chemical Society (1999), 121(32), 7407-7408} or Okano et al., {US 4,705,895}.

Applicants claim a diphosphine compound of formula 1; wherein all the variables are as defined in the claims.

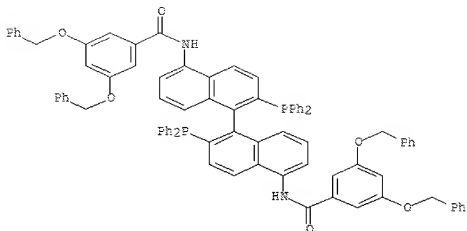


formula 1

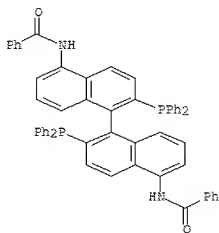
**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Guo-Jun Deng et al. teach a diphosphine compound as shown below. See first page, scheme 2.

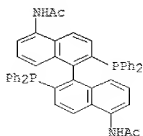
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Fan et al., teach a diphosphine compound as shown below. See compound on page 789.

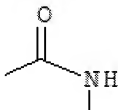


Okano et al. teach a diphosphine compound as shown below. See column 2.



**Ascertainment of the difference between the prior art and the claims (M.P.E.P., §2141.02)**

Applicants claimed diphosphine compound of formula 1 differs from the diphosphine compounds taught by Guo-Jun Deng et al., Fan et al. and Okano et al. in that Applicants claimed diphosphine compound is a structural isomer of those diphosphine compounds taught by the prior art references cited. Specifically, Applicants claimed diphosphine compound wherein the variable X<sub>1</sub> and X<sub>2</sub> are amide group shown below, and the carbonyl of the amide group is attached to binaphthyl of formula 1 while Guo-Jun Deng et al., Fan et al. and Okano et al. teach diphosphine compounds wherein the amine of the amide group shown below is attached to the binaphthyl compounds shown above.



Amide group

**Finding of prima facie obviousness--rational and motivation (M.P.E.P., §2142-2143)**

The instantly claimed diphosphine compound of formula 1 would have been suggested to one of ordinary skill in view of the teachings of the prior art references cited.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by evaluating different binaphthyl compounds from the teachings of Guo-Jun Deng et al., Fan et al. and Okano et al. to produce a diphosphine compound of choice. Said person would have been motivated to practice the teaching of the references cited because they demonstrate that diphosphine compounds are useful as metal catalyst ligands for asymmetric Hydrogenation. Additionally, the prior arts substituted diphosphine compounds are isomers of the claimed substituted diphosphine compounds of the general formula 1, and isomers are obvious because of their physical and chemical properties relationship. The instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

#### **Allowable Subject Matter**

Claim 74 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Chukwuma O. Nwaonicha/  
Examiner, Art Unit 1621

(for)

/Sikarl A. Witherspoon/  
Primary Examiner, Art Unit 1621

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Daniel Sullivan  
Supervisory Patent Examiner,  
Technology Center 1600